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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/497,515	02/04/2000	Shuji Hitomi	Q57834	7579

7590

07/24/2002

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EXAMINER

MERCADO, JULIAN A

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 07/24/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-9

Office Action Summary

Application No.

09/497,515

Applicant(s)

HITOMI

Examiner

Julian A. Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

This Office Action is responsive to Applicant's amendment filed May 14, 2002.

The objection to claims 1-3, 5 and 9 for minor informalities has been withdrawn.

The rejection of claim 5 under 35 U.S.C. 112, first paragraph has been withdrawn in view of Applicant's clarification of the catalytic particles providing for the ion exchange function of the electrode.

The rejection of claims 2, 4, and 6 under 35 U.S.C. 112, second paragraph has been withdrawn.

Specification

The amendment filed May 14, 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the disclosure that solution (c) having polymer (a) dissolved in solvent (b) is contained by "coating or immersion" with subsequent "solvent extraction".

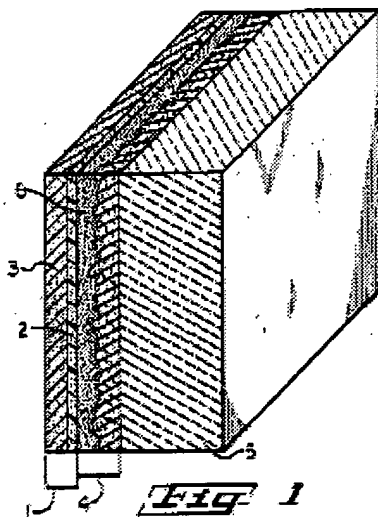
Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Mussell *et al* (U.S. Pat. 5,620,807).

The rejection is maintained for the reasons of record and a reiteration here follows. Mussell teaches a solid polymer electrolyte having a catalyst layer [1], a porous polymer [4], and a gas diffusion layer [5].



Applicant's arguments have been fully considered, however they are not persuasive.

Applicant submits that Mussell does not teach a porous polymer applied to an electrode of a fuel cell. It is noted that Applicant's discussion was set forth initially directed to independent claims 1 and 3. By this line of argument, however, it appears to the examiner that Applicant is relying on the limitation of claim 2, which recites "said porous polymer is provided for a portion of pores or/and surface of said catalyst layer". To the extent that Applicant's

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argument is understood by the examiner, Mussell is maintained to teach the porous polymer [4] provided at the surface of the catalyst layer [1] in that both surfaces are at a mutual interface. See Figure 1, which can be appreciated to show this porous polymer [4] in contact with the surface [2] of the catalyst layer [1]. As to independent claims 1 and 3, the catalyst layer [1] is maintained to contain a solid polymer electrolyte such as a perfluorosulfonic acid ionomer and catalyst particles such as platinum, Pt, as found in Example I from column 6 lines 35-60:

EXAMPLE 1

35 Membrane and electrode structures are prepared as follows (MEA 1): An ion exchange membrane prepared from perfluorosulfonic acid ionomer having an equivalent weight of 800, a thickness of 2.4 mil (60 μm) dried and 5 mil (127 μm) fully hydrated (available from The Dow Chemical Company as XUS 13204.20) is obtained and cut into sheets
40 11 cm by 11 cm and placed into a NaOH bath to convert it to the Na^+ form. The electrode ink is prepared by mixing 1.08 g of a 5.79 weight percent solution of the above ionomer (in a 50:50 volume percent ethanol/water solution),
45 0.1875 g of 20 weight percent platinum on carbon (available from E-TEK (Natick, Mass.)) and 0.114 g of tetrabutylammonium hydroxide (TBAOH), and 0.6 g of propylene carbonate (dispersing aid). The mixture is agitated with a stir bar overnight or until the mixture is uniformly dispersed. An
50 additional 1.2 g of propylene carbonate is then added to the mixture.

The catalyst ink is painted onto a clean, 9 cm^2 TeflonTM-coated fiberglass blank (CHR Industries, New Haven, Conn.) which has been dried in a oven at 110° C. and
55 pre-weighed. The blank is painted twice with the catalyst ink, which is completely dried before the application of the second layer. Pt loadings are 0.14 mg/cm^2 on the anode and 0.25 mg/cm^2 on the cathode. The MEA is formed by aligning a coated blank on each side of the ionomer mem-
60 brane which has been dried on a vacuum table. The blanks

Applicant submits that alleged porous polymer [4] is a porous "layer" and not a porous "polymer". [emphasis added, to the extent that this argument is understood by the examiner]

This is not persuasive, however, as porous layer [4] is specifically disclosed to comprise a

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polymer such as PTFE and Dupont Zonyl™, *inter alia*. (see col. 3 line 43 et seq., col. 4 line 59 et seq.)

Applicant's arguments against Raistrick and Cabasso (cited prior art references not relied upon as a basis for rejection) appear to be directed to these references failing to remedy alleged deficiencies in the Mussell reference and appear to merely pre-empt a forthcoming new ground of rejection. However, in view of the foregoing discussion, Mussell is maintained to teach the claimed invention.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511. The examiner can normally be reached on Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Ajah
July 19, 2002


Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700